SPI, CMM, SMS Review

1. What is Software Process Improvement (SPI)?

2. What is the Capability Maturity Model (CMM)?

3. How many maturity levels are there in the CMM?

4. What KPAs are in level 2?

5. In which KPA does testing reside?

6. What is the System Modification Scenario (SMS)?

7. What are the levels of the SMS?

Project Management Introduction

1. What is Project Management?

2. What are some of the PM goals?

3. Who is responsible for tracking actual progress to documented estimates?

4. Who is responsible for monitoring FSO PM policy compliance?

5. What is used as the guideline for managing a specific project?

SCR Size Estimate Preparation

1. What are some of the the items you can measure to produce a size estimate?

2. What are the approved size estimation methods?

3. What size estimation method does your AIS use?

4. Where should the size estimate method be recorded?

5. Where should the size estimate be recorded?

SCR Effort Estimate Preparation

1. What types of costs are listed in the SMS to which you can apply effort estimate procedures?

2. What are the approved effort estimation methods?

3. What effort estimation method does your AIS use?

4. Where should the effort estimate method be recorded?

5. Where should the effort estimate be recorded?

SCR Critical Computer-Resource Estimates Preparation Task

- Divide into teams.
- Read the description of the model system on the next page.
- Read the three related SCRs, numbers X0097-00, X0101-00, X0102-00, on the three pages following the model system description.
- Use the System Modification Scenario section on Critical Computer Resources as your process.
- Prepare a Critical Computer Resource Estimate for each SCR. Three blank forms follow the three SCRs.
- Present your team’s results.

Model System

The Asbury Company is a small Welding enterprise. It maintains a payroll file on a mainframe computer. The purpose of the file is to maintain current personal and payroll information on all 500 of their employees.

The current payroll MASTER file is called PAYDATA. It is a INDEX SEQUENTIAL FLAT file. There are multiple FIXED LENGTH record of 80 CHARACTERS. The records exist in numeric order. The Social Security Number is the INDEX KEY.

The PERSREC is the 01 record and it contains the employee personal data. Currently it has seven fields. The order of the fields and the data class is as follows: Record Number = 2 NUMERIC CHARACTERS, Social Security Number = 9 NUMERIC CHARACTERS, Name = 20 ALPHANUMERIC CHARACTERS; Address = 20 ALPHANUMERIC CHARACTERS; City = 16 ALPHANUMERIC CHARACTERS; State = 2 ALPHABETIC CHARACTERS; and Zip = 5 NUMERIC CHARACTERS. There are SPACES = 6 ALPHANUMERIC CHARACTERS at the end.

The PAYREC is the 02 record and it contains payroll data. CUrrently it has 5 fields. The order of the fields and the data class is as follows: Record Number = 2 NUMERIC CHARACTERS; Social Security Number = 9 NUMERIC CHARACTERS; Name = 20 ALPHANUMERIC CHARACTERS; Gross Pay = 12 NUMERIC CHARACTERS; and Net Pay = 12 NUMERIC CHARACTERS. There are SPACES = 25 ALPHANUMERIC CHARACTERS at the end.

The master file update is executed on daily, weekly and monthly cycles. Input can be received interactively or batched.

Defense Finance and Accounting Service System Change Request

1.: DFAS SCR# X0097-00	2. SCR#: X0097-00	3. FROM:		
4. SCR Title: US SAVINGS BOND	**5. Total System Changes:** 1	**6. System: PAYROLL & ACCOUNTING** **7. Subsystem:** PAYREC RECORD	**8. Category:** SECRET	**9. Date Received:** 10 MAY 1995
10. Point of Contact: DEBBIE SMITH	**11. Phone:** (317) 543-1234	**12. Office Code:** DFAS-		

13. DESCRIPTION: Change the basic deductions allowed for payroll deduction. Initialize by zero filling the field. The lowest non-zero amount allowed by payroll deduction will be ten dollars ($10.00). The amounts thereafter may be in increments of two dollars and fifty cents ($2.50) This new field will show the actual amount the employee has allotted to purchase savings bonds. Produce one report: ① US Savings Bonds by Employee's SSN - to show all bond allotments by each employee.

14. RECOMMENDED SOLUTION: Calculate the total bond allotment to the PAYREC record. Use the next six available spaces on the 02 record.

****The maximum allotment will not exceed the employee's basic take home pay.

15. REQUESTER BENEFITS: To allow the employee the convenience of payroll deductions for US Savings bonds.

16. FUNCTIONAL / TECHNICAL ANALYSIS: Use the next six available characters at the end of the PAYREC (02) record, for the total money amount to be allotted for US Savings bonds. .

17. COST / BENEFIT ANALYSIS: By adding US Savings bonds deductions, it allows for payroll deduction for employee savings.

18. Required by Date:	19. Work Estimate:	20. CDA:	21. DPI:
31 Jul 1995		FSO	FSO

Created:06/10/97 2:54 PM Updated: 06/11/97 8:23 AM
File: C:\TEMP\~WRO2594.doc Page 1 of 2

Defense Finance and Accounting Service System Change Request

1.: DFAS SCR# X0101-00	2. SCR#: X0101-00	3. FROM:		
4. SCR Title: VACATION EARNED	**5. Total System Changes:** 1	**6. System: PAYROLL & ACCOUNTING** **7. Subsystem:** PAYREC RECORD	**8. Category:** SECRET	**9. Date Received:** 10 MAY 1995
10. Point of Contact: DEBBIE SMITH	**11. Phone:** (317) 543-1234	**12. Office Code:** DFAS-		

13. DESCRIPTION: Add vacation time earned to the PAYREC record. Initialize by zero filling the field. Cumulate the time each pay period. This field will show the actual number of hours earned. Produce two reports: ① Employee Vacation Hours Earned List - to show all vacation hours earned for each employee and number of days on the payroll. Page break at each employee's SSN to give the employee a copy each month. The break gives the employee privacy relating to their own vacation time. ② Employee Vacation Hours Taken List - to show employees' names, vacation hours available, and number of hours taken this calendar year to date

14. RECOMMENDED SOLUTION:
Add start date to PERSREC using next six spaces available. Calculate vacation time hours to the PAYREC record using the next six available spaces.. The calculations for vacation time will be as follows:

1 - 90 days	4 hours	121 - 270 days	12 hours
91 - 120 days	8 hours	270 - 365 days	16 hours

Every 90 days over 365 days, the employee earns 36 hours. For example if an employee has worked 5 years and 20 days the employee would have earned 164 hours of vacation time if the employee had not used any leave.

15. REQUESTER BENEFITS: To provide accurate vacation time hours available to the employee and the employee' s manager .

16. FUNCTIONAL / TECHNICAL ANALYSIS: For start date, use next six available characters at end of the PERSREC (01) record. For vacation hours earned, Use the next six available characters at the end of the PAYREC (02) record. For vacation hours taken, use the next six available characters at the end of the PAYREC(02) record.

17. COST / BENEFIT ANALYSIS: By adding vacation time earned to the PAYREC record, it allows for better scheduling of vacation time without jeopardizing the overall mission.

18. Required by Date:	19. Work	20. CDA:	21. DPI:

Created:06/10/97 2:57 PM Updated: 06/10/97 2:57 PM
File: C:\TEMP\~WRO1996.doc Page 1 of 2

Defense Finance and Accounting Service System Change Request

1.: DFAS SCR# X0102-00	2. SCR#: X0102-00	3. FROM:		
4. SCR Title: VACATION EARNED	**5. Total System Changes:** 1	**6. System: PAYROLL & ACCOUNTING** **7. Subsystem:** PAYREC RECORD	**8. Category:** SECRET	**9. Date Received:** 10 MAY 1995
10. Point of Contact: DEBBIE SMITH	**11. Phone:** (317) 543-1234	**12. Office Code:** DFAS-		

13. DESCRIPTION: Allow each employee the capability to look at their own PAYREC data. This involves adding a password on their personal computer. This data should be made available using the Local Area Network (LAN) System. This information will be available to look at only. No changes will be allowed by the individual employee. Any errors will need to be corrected by the payroll personnel.

14. RECOMMENDED SOLUTION: Using the employee's network ID and a password of their own choosing, the system will automatically show the employee's valid PAYREC data menu. Select the menu desired. The information then will display on the screen and be available for screen printing. Cumulate the fields, by pay periods. Add a field to the PAYREC record to show the actual number of days worked. GUI application has to be designed. The system will be available for use on the LAN and a menu designed

15. REQUESTER BENEFITS: All employees will have available their PAYREC data to better schedule their vacation leave and adjust their work schedules accordingly.

16. FUNCTIONAL / TECHNICAL ANALYSIS: Use the next six available characters at the end of the PAYREC (02) record, for the number of days worked.

17. COST / BENEFIT ANALYSIS: By allowing each employee to have access, it will save the office money and time. Instead of printing the reports each pay period. The employee can print or see their report at a time convenient for him/her. It may not be necessary for an employee to see his/her report every pay period.

18. Required by Date:	19. Work	20. CDA:	21. DPI:

Created:06/10/97 3:00 PM Updated: 06/10/97 3:00 PM

SCR Critical Computer-Resource Estimates Preparation Task

Critical Computer-Resources Estimate Calculation Form

DATE: Example - For SCR Model: SCR Model System Use Only

Configuration Item Total	Critical Computer Resource	Unit of Measure	Cost per Unit
	Cost		
		Grand Total Cost	

SCR Critical Computer-Resource Estimates Preparation Task

Critical Computer-Resources Estimate Calculation Form

DATE: SCR Number:

Example - For Model System Use Only

Configuration Item Total	Critical Computer Resource	Unit of Measure	Cost per Unit
	Cost		
		Grand Total Cost	

SCR Critical Computer-Resource Estimates Preparation Task

Critical Computer-Resources Estimate Calculation Form

DATE: SCR Number:

Example - For Model System Use Only

Configuration Item Total	Critical Computer Resource	Unit of Measure	Cost per Unit
	Cost		
		Grand Total Cost	

SCR Firm Fixed Price Preparation Task

- Divide into teams.
- Use the description of the model system we used.
- Use the three related SCRs, numbers X0097-00, X0101-00, X0102-00, on the three pages following the model system description.
- Use the System Modification Scenario section on Firm Fixed Price Preparation as your process.
- Prepare a Firm Fixed Price Summary for each SCR. Three blank forms follow.
- Present your team’s results.

SCR Firm Fixed Price Preparation Task

Firm Fixed Price Summary Sheet

DATE:_____ **SCR NBR:**_____

ESTIMATE TYPE	TOTAL COST
Effort Estimate X FSO Hourly Rate	
CCR Estimate	
Ancillary Costs Estimate	
Subcontract Costs Estimate	
FIRM FIXED PRICE	$_____

SCR Firm Fixed Price Preparation Task

Firm Fixed Price Summary Sheet

DATE:_____ **SCR NBR:**_____

ESTIMATE TYPE	TOTAL COST
Effort Estimate X FSO Hourly Rate	
CCR Estimate	
Ancillary Costs Estimate	
Subcontract Costs Estimate	
FIRM FIXED PRICE	$_____

SCR Firm Fixed Price Preparation Task

Firm Fixed Price Summary Sheet

DATE:_____ **SCR NBR:**_____

ESTIMATE TYPE	TOTAL COST
Effort Estimate X FSO Hourly Rate	
CCR Estimate	
Ancillary Costs Estimate	
Subcontract Costs Estimate	
FIRM FIXED PRICE	$_____

Proposed Release Package Preparation Task

- Perform this individually.
- Use Firm Fixed Price and the Critical Computer Resource data you created for the three related SCRs, numbers X0097-00, X0101-00, X0102-00.
- Prepare a single proposed release package, assuming all three SCRs are to be incorporated into this release. One blank form follows.
- What are some limiting factors that can prohibit accomplishing all the SCRs in the current release?

Proposed Release Package Creation Task

Release Package Checklist

DATE _____ RELEASE PACKAGE NBR _____

SCR NBR FFP	HOURS	CCR	ARC	SCE	
TOTALS					

RESOURCE AVAILABILITY/CONSTRAINTS:

PROJECTED RELEASE IMPLEMENTATION DATE

Release Package Analysis Task

- Divide into Teams.
- Use our release package that assumes all three SCRs will be accomplished during this release.
- Prepare an Effort Evaluation. One blank form follows.
- In what section of the SDP do you record Effort Evaluation?
- Consolidate the Critical Computer Resources for the three SCRs.
- In what section of the SCP do you record consolidated CCRs?
- In what section of the SDP do you record consolidated Risks and Concerns?
- In what section of the SDP do you record consolidated Ancillary Requirements?

Release Package Analysis Task

Effort Evaluation Date _____ Release Package Number _____		
Tasks/Category		**Estimated Hours**
Project-Specific Training		
Planning and Administration		
Development Supervision		
Requirements Analysis/Determination		
Data Administration		
Design		
Programming		
Testing		
System Integration		
Database Administration and Support		
Documentation		
System Implementation		
Product Assurance		
Configuration Management		
Software Engineering		

Resource Availability Determination Task

- Divide into groups.
- Assume you are developing using the waterfall method. This implies you will complete all design before beginning programming and all programming before beginning testing.
- Use the attached, partially-prepared Effort Evaluation.
- Using the Staffing Profile on the next page, prepare a Staff Availability form only for the Design, Programming, and Testing categories.
- Using the CCR Profile, prepare a Critical Computer Resources Availability form.

Release Package Analysis Task

Effort Evaluation Date _____ Release Package Number _____		
Tasks/Category		**Estimated Hours**
Project-Specific Training		
Planning and Administration		
Development Supervision		
Requirements Analysis/Determination		
Data Administration		
Design		600
Programming		500
Testing		600
System Integration		
Database Administration and Support		
Documentation		
System Implementation		
Product Assurance		
Configuration Management		
Software Engineering		

Resource Availability Determination Task: Staffing Profile

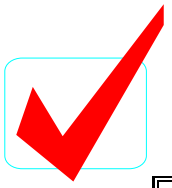
Resource	Primary Skills	Secondary Skills	Hours Avail.
Tom	Design	Programming	640
Mary	Programming	Design, Testing	640
Pat	Testing	Programming	240
Chris	Programming	Testing	240

Resource Availability Determination Task

Staff Hours Availability

Date _____ **Release Package Number** _____

Tasks/Category	Name	Hours
Project-Specific Training		
Planning and Administration		
Development Supervision		
Requirements Analysis/Determination		
Data Administration		
Design		
Programming		
Testing		
System Integration		
Database Administration and Support		
Documentation		
System Implementation		
Product Assurance		
Configuration Management		
Software Engineering		



Resource Availability Determination Task

Critical Computer Resources Availability

Date _____ Release Package Number _____

Task/Category	Item	Unit	Quantity	Date Available
Design				
Programming				
Testing				
Documentation				
System Implementation				

SDP Modification Task

- Review the sections of the SDP provided separately in the materials.
- For a current release under development for your AIS, what sections of the SDP would be contain different information? List the sections below and describe the differences at a high level.

Tracking and Oversight Task

- What kind of data need to be collected and recorded for each CI in the release?
- When modifications are made to an SCR in a release, what other items related to the release must be modified?

Tracking & Oversight Task

Configuration Item Data Collection Form

DATE _____ **RELEASE PACKAGE NBR** _____

	ESTIMATED	ACTUAL	% DEVIATION
SIZE DATA			
COST DATA			
EFFORT DATA			
CRITICAL COMPUTER RESOURCE DATA			
SCHEDULE DATA			
TECHNICAL ACTIVITIES DATA			
RISK DATA			
ANCILLARY REQMT DATA			